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November 18th.

Mr. LEA, President, in the Chair.

Twenty-one members present.

Prof. Baird communicated the fact that in his recent visit to Philadelphia, he had noticed that the leaves of the Silver Maple in the city and vicinity were dotted with black, indurated spots. Having transmitted specimens to Mr. C. C. Frost, the cryptogamic botanist, of Brattleboro', Vt., he was informed that the spots consisted of the *Rhytisma aceris-eriocarpæ*, Schw.

Dr. Leidy presented a specimen of syenite obtained from a recent exposure of that rock, among the gneiss on the Schuylkill, at Fairmount Park. He also remarked that he had noticed a boulder, apparently of Potsdam sandstone, at the corner of Thirty-seventh and Market Sts., which had been exposed in digging gravel. It was the largest transported block he had observed in our vicinity. It is oblong square and measures 7 feet long, 32 inches high and 40 inches wide.

November 25th.

Mr. VAUX, Vice-President, in the Chair.

Eleven members present.

On report of the Committee, the following paper was ordered to be published in the Proceedings:

Monograph of the Prehensile-tailed QUADRUMANA.

BY J. H. SLACK, M. D.

Few departments of mammalogy are less thoroughly understood than that of the American *Quadrumana*. The great variety of coloration in many species consequent on age and sex, added to their comparative rarity, combine to render their study excessively difficult. Suites of specimens of any species are rare even in the great European Museums. The species of the genus *Cebus*, perhaps the most common of the American *Quadrumana* have long been a source of dispute among naturalists. Wagner, (Schreber's *Saugethiere*, Supplement band, vol. i. p. 207, 1840,) reduces the number of species in this genus to two, regarding the second as doubtful, while Reichenbach, (*Die Vollständigste Naturgeschichte der Affen*, part I.) is content with no less than thirty-seven, not only describing but figuring them! In the *Cebus fatuellus*, the young is of a light brown, and the adult of a deep black color, and in the *Alouatta niger* (*Stenor niger*, Geoff.) the female and young are of a pale straw color, slightly dashed with black, while the adult male is entirely of an intense black. As such states of coloration have been regarded by certain eminent naturalists as specific characters, great confusion in synonymy has resulted.

In regard to nomenclature, I have followed closely the rule of priority, always adopting the oldest generic and specific names whose applications can be ascertained. In regard to the rules given by Isidore Geoffroy St. Hilaire,* (*Cat. des Primates*, p. xi.) the first and second are broken by him on the fourth page of the work in which they are promulgated; where the generic name *Troglodytes* is retained for an animal living among the branches of trees, the

* Rejeter les noms absurdes par eux memes, ou contradictoires avec les faits ou les idées qu'ils sont destinés à exprimer.

Rejeter les noms déjà employés dans une autre acceptation.

Considérer comme non avenus (toutfois les citant en synonymie) les noms tombés en désuétude.

same name having been given to a genus of birds by Vieillot, (*Oiseaux de L'Amerique septentrionale*, p. 52, 1807,) five years previous to its being applied to the above mentioned ape by Geoffroy St. Hilaire; and, on page 53 of the same work, the specific name *niger* is retained for a howler, the female and young of which are characterized as being yellowish (*jaunatre*.) The third rule is not generally recognized at the present day.

The measurements recorded have been taken with great care, but allowance must be made for the distortion of the specimens by skinning and mounting; this distortion is sometimes very great, especially in the specimens from the Paraguay and Atrato expeditions. The length of tail in the same species is very variable, owing probably to the great liability of that organ to injury.

The materials for the present paper have been drawn from the following sources. The collection of the Academy of Natural Sciences of Philadelphia; that of the Smithsonian Institution, Washington City, the Quadrumana belonging to which, collected by the United States' Paraguay, Amazon, and Atrato Expeditions, were kindly forwarded to me by the Secretaries, who are ever ready to assist the student-naturalist by every means in their power; the magnificent collection of the British Museum, London, opened to me without restriction, through the kindness of Dr. J. E. Gray, and Mr. G. R. Waterhouse; the collection in the magazin of Messrs. J. & E. Verreaux, No. 9, Place Royale, Paris, where every facility for investigation was kindly afforded me; and a view (through the glasses,) of the specimens in the Musée d'Histoire Naturelle, at the Jardin des Plantes, Paris, where, however, I was refused permission to open the cases for the closer examination of the specimens. I am therefore unable to give measurements of some species, unique specimens of which are preserved in that magnificent, though inaccessible collection.

I adopt the following classification of the American Quadrumana:

Order *QUADRUMANA*.

Family *SIMIIDÆ*. Dentes primores $\begin{smallmatrix} 4 \\ - \\ 4 \end{smallmatrix}$ contigui.

Subfamily *Cebinæ*. Molares $\begin{smallmatrix} 6 \\ - \\ 6 \end{smallmatrix}$

Subfamily *Hapalinæ*. Molares $\begin{smallmatrix} 5 \\ - \\ 5 \end{smallmatrix}$

The *Cebinæ* I propose to divide into three tribes, viz.:

Lagothrice. Cauda prehensili; apice subtus calva; dentes primores erecti.

Cebi. Cauda laxa; villosa; dentes primores erecti.

Pitheciæ. Cauda laxa; villosa; dentes primores obliqui.

The *Cebiræ* have been regarded by most authors as having the prehensile tail, and this is mentioned by Erxleben (*Syst.* 1777, p. 44,) as a generic character of this group. Though sufficiently flexible to be wound around the body, it is far from serving the purpose of a fifth hand, as is the case in the *Lagothrices*. This organ in the *Cebi* is clothed with hair to the tip, while in the *Lagothricines* the terminal inferior portion is naked and callous.

Tribe I. *LAGOTHRICES*.

Simia (parte), *Linn.*, Ed. xiii. 1788, p. 26.

Cebus (parte), *Erxleben*, *Systema*, 1777, p. 44.

Gymnuri, *Spix*, *Sim. et Vesp.*, 1823, p. 1.

Cebus (parte), *Fisher*, *Syn. Mam.*, 1829, p. 37.

Atelina and *Mycetina*, *Gray*, *Proc. Zool. Soc.*, 1849, p. 10.

Cauda longa, prehensili; apice subtus calva.

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Tail very long, generally exceeding the head and body in length, very strongly prehensile, terminal inferior portion naked and callous.

I have selected the genus *Lagothrix* as the typical genus of this tribe, as each of the other genera possesses some peculiarity either of excessive, or arrested development.

Genus I. SAPIJOU, Lacépède.

Simia (parte), *Linn.*, *Systema*, ed. xiii. 1788, p. 26.

Cebus (parte), *Erzleben*, *Systema*, 1777, p. 44.

Sapijou, *Lacépède*, *Mem. de l'Institut*, 1800—1801, p. 489.

Ateles, *Geoff.*, *Ann. du Mus.*, 1806, p. 260.

Artus graciles longi; antipedes tetradactyli aut verruca in loco pollicis; instructa dentes primores superiores inequales, lanarii illis longiores, conici.

Body light and slender; compressed at the loins, and expanding in the thoracic region; limbs very long and slender; anterior thumbs wanting, or replaced by a small nailless tubercle; forehead salient, muzzle elongate, molars circular and small, the fourth and fifth being largest, canines large and conical, superior incisors of unequal length, the median equalling in size the largest molars; hair silky.

Isidore St. Hilaire, in his paper upon the *Eriodes*, (*Mem. du Mus.*, vol. xviii. 1829, p. 121,) states that in the skull of this genus a portion of the circumference of the anterior nares is formed by the ascending portion of the superior maxillaries, the intermaxillaries not articulating with the nasal bones. This is not always the case, as I have met with several skulls of species of this genus, in which the ascending portion of the intermaxillaries, and the inferior borders of the nasal bones were in contact; no true articulation, however, takes place, the points of the bones merely touching each other. The name *Sapijou* proposed for this genus by Lacépède, has not been adopted by subsequent authors; it certainly is at least five years prior to that of *Ateles*, and should be restored.

SAPIJOU PANISCUS, Lacépède.

Simia paniscus, *Linn.*, *Syst. ed.* xiii. 1788, p. 36.

Cebus paniscus, *Erz.*, *Systema*, 1777, p. 46.

Ateles paniscus, *Geoff.*, *Ann. du Mus.*, vol. vii. 1806, p. 269.

Coati, *Buffon* and *Latreille*.

Quatto and *Coactu*, *Vosmaer*.

Icones, *Audebert*, *Singes Fam. V. sect. 1*, fig. 2. *Buffon*, *Hist. Nat.*, vol. xv. fig. 1. *Latreille*, *Les Singes*, vol. ii. fig. 62.

S. ater. *Facie tota nuda, carnea; palmis tetradactylis.*

Hab.—Guiana.

Entirely of a deep shining black color; anterior hands tetradactyl; tail about one-fourth longer than body; face naked and of a flesh color; hairs of forehead very long and projecting anteriorly.

This species is by far the best known of any of the genus, numbers being captured when young by the natives of Guiana, and, as they are of a hardy temperament, they thrive well in captivity; its habits in this state are gentle and pleasing. In a state of nature they live in large troops, numbering sometimes as many as one hundred individuals. They are much hunted for food by the natives, their flesh being considered a great delicacy. Their food consists chiefly of the fruit of a species of palm. *Dampier* (*Voyages*, vol. iv. p. 228) states that they resort to the sea-side, at low water, in large numbers, for the purpose of collecting oysters, breaking the shell between stones, and eating the animal with great gusto. *Latreille* states, (*Hist. Nat. des Singes*, vol. ii. p. 145,) that they devour large numbers of fishes, which they capture by means of their tails! this we fear must be received "cum grano salis," though that organ is used for a great variety of purposes. The naked portion is studded with papillæ analogous to those of the human hand, and, from experiments made 1862.]

upon the living animal, it appears to be more sensitive than the hand itself. This species is found in Guiana and Northern Brazil.

Current No.	LOCALITY.	Sex.	From tip of nose to				Tail	Length of		Length of		Owned by	Nature of Specimen.
			Eye	Ear	Occ.	Tail		Ant. hands.	Post. hands.	Ant. limbs.	Post. limbs.		
5140	Guiana?	♀	1·5	3·2	7	19	25	5	5·8	12	15	Smithsonian	Mounted
21	Guiana.	♀	2	3·5	8·5	24	30	5	5·8	17	22	Academy	Mounted

Skull No. 189 in collection of Academy—Antro-posterior 4·2; occipito-frontal 3·2; bi-temporal 2·25; bi-parietal 2·5; cranial capacity 6 inches; facial angle 55°.

Lower Jaw.—Angle to symphysis 2·5; angle to condyle 1·8: angle to coronoid process 1·8; posterior molar to coronoid process 1·05.

SAPAJOU ATER.

Ateles ater, *F. Cuvier*, Mammifera, 1823.

Cebus ater, *Fischer*, Synopsis, 1829, p. 40.

Le Cayon.

Icones, *Cuv.*, Mammifera, (Icon sine numero.) Règne Animal (editio Fortin, Masson & Co.), Mammifera, T. xvi.

S. ater; palmis tetradactylis; facie nigra.

Junior, brunneus.

Hab. Guiana.

Entirely black; thumbs of anterior hands wanting; face black, the superior portion naked, the chin covered with short stiff black hairs, among which are scattered a few of a white color; hairs of forehead directed posteriorly, forming a tuft.

This species closely resembles the *paniscus*, but may always be distinguished by the color of the face, and the direction of the hairs of the forehead. The color of the young is much lighter than that of the adult. A young specimen, (No. 4618) in the Smithsonian collection, has a decided brown tint upon the back and external surface of limbs.

Its habitat is Guiana.

Current No.	LOCALITY.	Sex.	From muzzle to				Tail	Length of		Length of		Specimen owned by	Nature of Specimen.
			Eye	Ear	Occ.	Tail		Ant. hands.	Post. hands.	Ant. limbs.	Post. limbs.		
4618	Guiana	♂	1·5	3·5		19	26	5·5	5·5	15·5	14·5	Smithsonian	Mounted
697	"	♂	1·5	3·5		19	22	?	5	14·5	13	Academy	"

SAPAJOU PENTADACTYLUS.

Ateles pentadactylus, *Geoff.*, Ann. du Mus., 1806, t. vii. p. 267.

Ateles chamek, *Humb.*, Rec. des Obs. Zool., 1811, p. 353.

Ateles subpentadactylus, *Desmarest*, Mammalogie, 1820, p. 77.

Chamek, *Buffon* and *Humboldt*.

Icon, *Reichenbach*, Naturgeschichte der Affen, vol. i. T. 148. (Fig. pessima.)

S. ater; palmis subpentadactylis; pollice minimo; facie nuda cupreaque.

Habitat. Guiana.

Entirely black; anterior thumbs replaced by a small nailless tubercle, face naked, and of a copper color.

The coloration of this species is similar to that of the *ater* and *paniscus*, but it may readily be distinguished by the presence of a tubercle upon the anterior hands in the position of the thumb; the hairs of forehead are long, projecting anteriorly, as in the *paniscus*, the skull differs materially from that of any other of the genus in being compressed laterally, forming a slight crest at the sagit-

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tal suture, the rami of the lower jaw are much broader, approaching in shape that of the Howlers. Isidore St. Hilaire in his memoir upon the classification of the Quadrumana, (Arch. du Mus. vol. ii. p. 449,) mentions a specimena having the thumb absent on one hand.

SAPAJOU BELZEBUTH.

Simia belzebuth, *Brisson*, Regne Animale, vol. 1, 1756, p. 194.

Ateles belzebuth, *Geoff.*, Ann. du Mus., vol. vii. 1806, p. 260.

Ateles belzebuth, *Humb.*, Recueil, vol. i. 1811, p. 337 and 353.

Cebus Brissonii, *Fischer*, Synopsis, 1829, p. 40.

Marimonda et Aru, *Humb.*

Icon. Ann. du Mus., vol. vii. T. 16.

S. niger; palmis tetradactylis; ventre cruribus et caudæ parte anteriore ochroleucis.

Hab.—Guiana, Brazilia et Peruvia.

General color brownish-black, becoming reddish brown in the lumbar region; belly, neck, and internal surface of limbs yellowish-white; inferior surface of tail reddish-brown. Face naked and black; tip of nose sometimes reddish-brown, sometimes black.

Humboldt states that in captivity this species is cross and fretful, frequently attacking those from whom it habitually receives its food. Its cry is a repetition of Ou-á, Ou-á, and may be heard to a great distance.

Its geographical range extends across the entire continent from Guiana to Peru. I have met with no specimens collected south of the Amazon. Humboldt found it quite common on the banks of the Orinoco.

Current No.	LOCALITY.	Sex.	From muzzle to				Tail	Length of		Length of		Owned by	Nature of Specimen.
			Eye	Ear	Occ.	Tail		Ant. hands	Post. hands	Ant. limbs	Post. limbs		
24	Guiana	♂	2	3		26	30	4.5	6	19	21	Academy	Skin
362	"	♂	2	3-2	6	22	31	6	7	21	22	"	Skeleton.

Skull No. 362, Academy—Antro-posterior 4.3; occipito frontal 3.3; bi-temporal 2.2; bi-parietal 2.3; cranial capacity 5; facial angle 56°.

Lower Jaw.—Angle to symphysis 2.8; angle to condyle 1.45; angle to coronoid process 1.6; posterior molar to coronoid process 1.05.

SAPAJOU GEOFFROYII.

Ateles Geoffroyii, *Kuhl*, Beitrag, 1820, p. 26.

Ateles fuliginosus, *Kuhl*, Beitrag, 1820, p. 25.

Cebus Geoffroyii, *Fischer*, Synopsis, 1829, p. 40.

Ateles melanochir, *Desmarest*, Mam., 1820, p. 76.

Eriodes frontatus, *Gray*, Voy. of Sulphur, vol. i. 1844, p. 1.

Ateles variegatus, *Natterer*,* in Reichenbach's Atlas, pt. 1, p. 62.

Icones, Voyage of the Sulphur, T. i. Foemina et juvenis. Reichenbach's Atlas, pt. 1, fig. 154.

S. ater; ventre et artibus interne stramineis; macula triangulari frontali aurea aut nigra; dorso nigro.

Foem. straminea aut fuliginosa; genubus et manibus nigris; macula frontali nigra.

Hab.—Brazil et Bolivia.

Adult male, back, external surface of limbs and tail glossy-black; belly, throat, internal surface of limbs, and inferior portion of tail bright-yellow, upon the forehead a triangular spot of bright golden yellow, the hairs com-

* I have never met with Natterer's original description. I find it quoted in Reichenbach's Atlas, the figure is that of the adult of this species, though the frontal spot is too large.

posing which are directed superiorly; hairs of occiput long and black; cheeks covered with short white hair; behind and beneath cheeks, two pencils of long black hairs directed anteriorly.

Female and young male, coloration generally lighter than in male, the black of the back and limbs being replaced by a brown of greater or less intensity, according to the age of the specimen; triangular spot upon the forehead black, the hairs composing it being yellow at their bases and black throughout the remainder of their length; elbows and feet black.

Young, yellowish, dashed with brown, frontal spot as in female, or with the hairs black to the root.

By means of a fine suite of specimens, in the collections of the Academy and Smithsonian Institution, I have been enabled to study with care this most curious species. Though varying greatly in coloration it may always be recognized by the triangular frontal spot.

I have examined the skull of a female corresponding in coloration to Dr. Gray's *Brachyteles frontatus*, and find it decidedly that of a Sapajou, the distance between the intermaxillaries and nasal bones being one-tenth of an inch.

The only specimen I have met with from a well authenticated locality is one collected by the Paraguay expedition (Sm. Inst. No. 3252), in Bolivia. Specimens in the collection of the Academy are marked Brazil, but as they were purchased of a dealer, little reliance can be placed upon it. Dr. Gray's type is marked Tropical America, and no locality is given for any specimen in the Paris museum, all being "De la Ménagerie."

Current No.	LOCALITY.	Sex.	From muzzle to				Length of		Length of			Owned by	Nature of Specimen.
			Eye	Ear	Occ.	Tail	Tail	Ant. hands	Post. hands	Ant. limbs.	Post. limbs.		
3252	Bolivia	♂	2	3		22	21	6	7.5	20	22	Smithsonian	Skin Mounted skin
26	Brazil?	♂	2	3		23	32.5	5	6	20	20	Academy	
88	"	♀	1.5	2.2		15	18	4	3	11.5	10	"	

Skull of No. 3232, occiput broken*—Antro posterior?; occipito frontal?; bi-temporal 2.35; bi-parietal 2.4; facial angle 56°; cranial capacity?.

Lower Jaw.—Angle to symphysis 2.8; angle to condyle 1.5; angle to coronoid process 1.7; posterior molar to coronoid process 1.25.

SAPAJOU MARGINATUS.

Ateles marginatus, Geoff., Ann. du Mus., vol. xiii., 1809, p. 92.

Ateles frontatus, Bennett, Proc. Zool. Soc., 1830, p. 38.

Ateles albifrons, Schinz., Synopsis, vol. i., 1844, p. 63.

Chuva, Humboldt.

Icon. Ann. du Mus., vol. xiii., T. 9.

S. niger; pilis faciem cingentibus partim albis; sincipite albo.

Hab.—Brazil, Grand Para.

General color black; belly and internal surface of limbs ashy-grey; face naked, flesh-colored in the ocular region, the remainder black; forehead, sinciput and a spot on each side of nose white or grey.

Humboldt found this species quite abundant in the province of Jaen de Bracamoros; he describes its disposition as fierce and libidinous.

SAPAJOU HYBRIDUS.

Ateles hybridus, Is. Geoff., Mem. du Mus., vol. xvii., 1828, p. 168.

* This skull presents the anomaly of a well developed seventh molar in the left superior maxillary; such anomalies are not unfrequently met with among the *Quadrumana*. I recollect examining at the Magasin de Verreaux freres, Paris, a skull of the *Simia satyrus* having on each side of the lower jaw six well defined molars.

Mono zambo, native name.

Icon. Guerin, Mag. de Zoologie, 1832, fig 1.

S. Supra griseo-brunneus; infra albidus macula frontali semilunari aut triangulari alba.

Hab.—New Grenada.

Body and tail light chocolate-brown, lighter upon head, neck, hands, and external surface of limbs; throat, belly, and internal surface of limbs grey; upon the forehead a triangular or semilunar white spot; face naked and black; chin and lips sparsely covered with thick, short, white hairs.

This species may be distinguished from the *marginatus* by the coloration. The young of that species, even at birth, is similar in coloration to the adult; the frontal spot is always white or grey, thus distinguishing it from the *Geoffroyi*. The name Mono zambo is stated by Isidore Geoffroy to signify Mulatto Monkey, from its color being somewhat similar to that of the hybrids between the Indians of Columbia and the negro. Skulls of the *Alouatta palliatus*, however, received from the Atrato expedition, are marked Mono zambo.

Current No.	LOCALITY.	Sex.	From muzzle to				Tail	Length of		Length of		Owned by	Nature of Specimen.
			Eye	Ear	Occ.	Tail		Ant. hands	Post. hands	Ant. limbs.	Post. limbs.		
87	Columbia	♂	1·5	2·5	5	18	24	3	5	13·5	16	Academy	{ Mount- ed skin

Genus II. BRACHYTELES, Spix.

Brachyteles, *Spix*, Sim. et Vesp., 1823, p. 36.

Eriodes, *Is. Geoff.*, Mem. du Mus., 1829, p. 121.

Corpus robustum; cranium rotundum; nares oblongæ, antrorsum versæ, septo tenui separata; manibus tetra aut pentadactylis; dentes primores æquales, lanarii breves.

Body heavy, facial angle about 60°; head more spherical than in the Sapa-jous; nostrils circular, more inferior than lateral; anterior thumbs wanting, or rudimentary, sometimes terminated by a small nail; tail longer than body; incisors equal; canines small, not exceeding the incisors in length; molars larger than incisors, quadrangular. Intermaxillaries articulating with nasal bones by a broad surface. Hair woolly.

I cannot agree with Isidore St. Hilaire that the description of this genus by Spix is incorrect; the peculiar position of the nostrils, which resemble more those of the *Quadrumanus* of the Old World than any other of the American genera, the equality in the size of the incisors, shortness of the canines, and globular form of head appear to me sufficient generic distinctions. The length of pelage, and the question whether it may be soyeux or laineux does not appear to me to be of generic value.

BRACHYTELES ARACHNOIDES, Gray.

Ateles arachnoides, *Geoff.*, Ann. du Mus., t. xiii. 1809, p. 89.

Ateles hypoxanthus, *Desm.*, Mammalogie, 1820, p. 75.

Brachyteles macrotarsus, *Spix*, Sim. et Vesp., 1823, p. 36.

Eriodes tuberifer, hemidactylus, and *arachnoides*, *Is. Geoff.*, Mem. du Mus., t. xvii. 1828, pp. 160, 161, 162.

Brachyteles arachnoides, *Gray*, Cat. of Brit. Mus., 1843, p. 10.

Mariki kupo and *Macaco vernello*. Native names.

Icones, Ann. du Mus., vol. xiii. Pr. 9. *Spix*, Sim. et Vesp., T. 27. *Max de Wied.*, Abbild. zur Brazil, vol. i. T. 1.

B. Cinereo flavescens; ad caudæ basin ochraceus; facie nuda; pollice aut nulla, aut brevis; ungues carente aut prædita.

1862.]

Hab.—Brazil.

General color yellowish brown, darker upon the occiput, upon the forehead a few long black hairs, buttocks, region of the anus and inferior basal portion of tail dark reddish brown.

I had long suspected that the three species of this genus described by Isidore St. Hilaire, were in reality one and the same species; no specific characters are manifest in their coloration, or skulls, the different species being based upon the development of the anterior thumbs, this member being absent in the *arachnoides*; replaced by a small nailless tubercle in the *tubifer*, and surmounted by a nail in the *hemidactylus*. In the Magazin of Messrs. Verreaux, 9 Place Royale, Paris, I found specimens having upon one hand the tubercle, and upon the other the nailed thumb, others with the tubercle upon one hand, but absent upon the other. Isidore St. Hilaire himself (Cat. des Primates, p. 51) expresses a doubt as to whether the *arachnoides* and *hemidactylus* are really distinct. In September and October, 1860, I was unable to find the *hemidactylus* in the Paris Museum, all the Brachyteles being labelled *Eriodes arachnoides*.

Current No.	LOCALITY.	Sex.	From muzzle to				Tail	Length of		Length of		Owned by	Nature of Specimen.
			Eye	Ear	Occ.	Tail		Ant. hands	Post. hands	Ant. limbs.	Post. limbs.		
25	Brazil	♂	2	3.5	5	22	26	6	7	18	17?	Academy	{ Mount ed skin
597	"	♀	1.2	3	?	17.5 broken		3	4	11	11	"	

Skull of No. 597, young, occiput broken—Antro-posterior 3.8; occipito-frontal 3; bi-temporal 2; cranial capacity ?; facial angle 66.

Lower jaw.—Angle to symphysis 2; angle to condyle 1.3; angle to coronoid process 1.4; posterior molar to coronoid process .88.

Genus III. LAGOTHRIX, Geoff.

Lagothrix, Geoff., Ann. du Mus., vol. xix. 1812, p. 106.

Gastrimargus, Spix, Sim. et Vesp., 1823, p. 39.

Caput obtusum, rotundatum; rostro sima, manibus pentadactylis; dentes primores parvus, lanarii illio longioris.

Body heavy, head globular, muzzle of adult much flattened, anterior hands pentadactyl, incisors small and of unequal size, the superior median being largest; canines very large and strong, carinated on their posterior surfaces, and grooved anteriorly; anterior nasal foramen nearly circular.

This genus was founded by Geoffroy St. Hilaire, in his Tableau des Quadrumanes (*ante cit.*) Spix, eleven years after, in his elephantine work upon the Quadrumana and Cheiroptera, of Brazil, proposed for it the name *Gastrimargus*, from the great voracity of the only known species, which is said to exceed that of any others of the American Quadrumana. The skull can be readily distinguished from that of the Sapajous and Brachyteles by the mode of articulation of the nasal bones with the intermaxillaries. In the Sapajous no true articulation can be said to take place, the intermaxillaries terminating generally in a point a short distance below the intermaxillaries, though sometimes barely touching them; in the Brachyteles and Lagothrix, a broad, well-marked articulation takes place, in the former species perpendicular to the suture between the nasal bones, and in the latter parallel to it. The rami of the lower jaw are much broader than in either of the before mentioned genera, approaching in size and form those of the Howlers.

LAGOTHRIX HUMBERTII, Geoff.

Simia cana, Humb., Recueil des Obs., vol. i. 1811, p. 354.

Simia lagothrica, " " " " " pp. 322 and 354.

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Lagothrix cana and *Humboldtii*, *Geoff.*, Ann. du Mus., vol. xix. 1812, p. 107.
Gastrimargus infumatus et *olivaceus*, *Spiz*, Sim. et Vesp., 1823, p. 39.
Cebus lagothrix, *Fischer*, Synopsis, 1829, p. 41.
Lagothrix capparo, *Lesson*, Species, 1840, p. 125.
Lagothrix poppighii et *infumata*, *Schinz*, Synopsis, 1844, pp. 71 and 72.
Lagothrix Castelnau, *Is. Geoff.* and *Déville*, Comptes Rendus, vol. xxvii. 1848, p. 496.

Capparo, *Humboldt*.

Icones, *Spiz*, Sim. et Vesp., tab. 28 and 29.

L. Mas brunneus cum cana-admixta; facie nuda et nigra; capite et manibus nigris; femoribus et cauda brunneo-fusca.

Fœmina olivacea; pilis capites niger.

Catulus olivaceo-canus; capite manibus et cauda infera nigro-fusco.

Hab.—Brazil, Bolivia, Venezuela, Peru.

Adult male, general color reddish brown, dashed with hoary gray, the hairs being brown at their bases, tipped with gray; the brown predominating upon the internal surface of limbs and perineal region; belly dark brown, sometimes black, terminal portion of tail and top of head black; face naked and black, upon the lips a few scattered white hairs;

Female, general color olive yellow or brown; head black.

Young, hoary grey, darker on belly and internal surface of limbs; hands and top of head black.

The great variety of coloration in this species resulting from age and sex has led to great confusion in its nomenclature. I have examined with great care specimens of the various so-called species, and believe them all to be one and the same. The collection at the Jardin des Plantes, contains specimens labelled *canus*, *Humboldtii*, and *Castelnau*, those of the *canus* (including the typical specimen, part of the spoils of Bonaparte from Portugal,) are, as may be seen by reference to the catalogue, (page 50,) all young males, and Isidore Geoffroy himself expresses a doubt as to its being distinct from the *Humboldtii*. A young specimen, (No. 28,) in the collection of the Academy, presented in 1857, the coloration of the *Castelnau*, answering perfectly the description given by Isidore Geoffroy and Deville; by exposure to light and the camphorated and arsenical vapors of the museum, the color has slightly faded, and the specimen now answers perfectly the description of the *canus*. The *L. poeppighii* I have never seen, but the description by Schinz (*L. notæo castaneo fusco; gastræo niger-rimo; facie nuda nigra rugosa, Synopsis mammalium*, p. 72,) does not differ essentially from that of the adult *Humboldtii*.

Current No.	LOCALITY.	Sex.	From tip of nose to				Tail	Length of		Length of		Owned by	Nature of Specimen.
			Eye	Ear	Occ.	Tail		Ant. hands	Post. hands	Ant. limbs.	Post. limbs.		
28	Brazil	♂	1	2.3	4.5	18.5	25.5	3.5	4	12.5	13	Academy	{ Mount- ed skin Skin
3238	Bolivia	♂	2	3.5	4.3	20	24	4	5.3	14	16	Smithsonian	

Skull of No. 3238, occiput broken—Antro-posterior?; occipito-frontal?; bi-temporal 2.2; bi-parietal 2.4; cranial capacity?; facial angle 50°.

Lower jaw.—Angle to symphysis 2.6; angle to condyle 1.95; angle to coronoid process 1.8; posterior molar to coronoid process 8.5.

Genus IV. ALUATTA, Lacépède.

Simia (parte) *Lin.*, Ed. xiii. 1788, p. 26.

Cebus, *Cuv.* and *Geoff.*, Magasin Encyclopedique, vol. i. 1795, p. 71.

Aluatta, *Lacépède*, Mem. de l'Institut, 1777, p. 489.

Mycetes, *Illiger*, Prodrromus, 1811, p. 70.

Stentor, *Geoff.*, Mem. du Mus., 1812, p. 107.

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Caput pyramidale, manibus pentadactylis; os hyoideum prominens, cavernosum.

Head pyramidal, facial angle about 50°, inferior maxillary large and massive, incisors small and equal, canines, and molars large; occipital bone with a well defined median ridge terminating superiorly in an osseous tubercle; body of hyoid bone very large and hollow, very apparent in the living animal, chin bearded, face naked.

Of all genera of American Quadrumana, the present is perhaps the most unattractive and even repulsive in appearance; a huge pyramidal head placed upon a thick unwieldy body, contrasts strongly with the globular heads and comparatively light bodies of the genera before enumerated. Its chief peculiarity, however, consists in the enormous development of the body of the hyoid bone; this is of an ovoid form and hollow; one in the collection of the Academy has a capacity of 5 cubic inches.*

By means of this curious organ the voice of the animal is augmented to such a degree that it may be heard at a distance of three miles. I have been informed by persons residing at Panama, that the senicula loses its voice entirely in captivity. The same may be true of other species.

ALUATTA SENICULA, Lacépède.

Simia seniculus, Linn., Ed. xiii. 1788, p. 36.

Aluatta seniculus, Lacépède, Mem. de l'Inst., vol. iii. 1800, 1801, p. 489.

Stentor seniculus, Geoff., Ann. du Mus., vol. xix. 1812.

Stentor chrysurus, Is. Geoff., Mem. du Mus., vol. xvii. 1848, p. 166.

Mycetes laniger, et *auratus*, Gray, Ann. and Mag. of Nat. Hist., vol. xvi. 1845, p. 219, 220.

Aluatte, Buffon & Audebert.

Aluatte, Quaraine et Hurleur, Latreille.

Royal monkey, Pennant.

Icones, Latreille, Les Singes, vol. ii. T. 115 and 116. Audebert, fam. 5, sect. 1, fig. 1. Guérin, Mag. de Zoologie, 1832, class 1, tom. vii.

A. Corpore fulvo-fusco aut aurescente; capite collo ante brachiis, femoribus et cauda castaneis; barba longa rufescente; facie pectoreque, nudis et nigris.

Hab.—Brazil, Equador, Venezuela and New Grenada.

Head, neck, limbs and tail, dark chestnut brown; back and sides golden yellow; beard in adult long, the hairs composing it being mostly golden yellow at their bases, and chestnut brown through the remainder of their length; face naked and black; chest naked, abdomen sparsely covered with long, brownish hairs.

The above description is taken from an adult male (No. 985) in the collection of the Academy. The young have the same general distribution of colors, though of a darker shade. Dr. Gray, in his paper upon the genus *Mycetes*, (Ann. and Mag. Nat. Hist., Oct. 1845, p. 219) lays great stress upon the texture of the hairs as a specific distinction. In the present species the hairs of the adult are soft to the touch, while those of the young are hard and rigid. In regard to the identity of this species with the *chrysurus* of Isidore Geoffroy, I was for some time in doubt, but the examination of a large number of specimens has convinced me that it is but a slight variety of the senicula; the skulls present no dissimilarity; the only external difference being that the apical third of the tail is similar in coloration to the back. In a suite of specimens from New Grenada, one has the terminal portion of the tail bright golden yellow; in the second, it is somewhat darker, and in the remaining two it has

* A full and complete account of the anatomy of this curious organ and the adjacent parts may be found in the Oeuvres de Pierre Camper, Paris, 1803, 3 vols. 12mo., vol. 1, p. 76. Also in the Histoire Naturelle des Singes, Latreille, Paris, 1801, 2 vols., 12mo. vol. 2, p. 125.

he chestnut brown color of the senicula. Dr. Gray's *M. laniger* is undoubtedly of this species.

Current No.	LOCALITY.	Sex.	From muzzle to				Tail	Length of		Length of		Owned by	Nature of Specimen.
			Eye	Ear	Occ.	Tail		Ant. hands	Post. hands	Ant. limbs.	Post. limbs.		
985	Brazil	♂	2.6	5	5.5	27	23	5	5.8	16.5	17	Academy	{ Mount- ed skin Skin much dis- torted
3242	{ New Granada	?	1.9	3.2	5	19.5	20	3.5	3.8	13	13	Smithsonian	

Skulls.—Current No. 578 A. N. S.—Antro-posterior 4.55; oecipito-frontal 2.15; bi-temporal 2; bi-parietal 2.5; facial angle 43°; cranial capacity 4.25. Current No. 3424 Smithsonian.—Antro-posterior 4.3; oecipito 2.9; bi-temporal 2; bi-parietal 2.5; facial angle 45°; cranial capacity 4.

Lower Jaw.—Current No. 578; angle to symphysis 3.2; angle to condyle 2.4; angle to coronoid process 2.25; posterior molar to coronoid process 1. Current No. 3424; angle to symphysis 3.1; angle to condyle 2.4; angle to coronoid process 2.25; posterior molar to coronoid process 1.

ALUATTA URSINA.

Stentor ursinus and *fuscus*, *Geoff.*, Ann. du Mus., tom. xix., 1812, p. 108.

Simia ursina, *flavicaudata* et *guariba*, *Humboldt*, Rec. des Obs., tom. i., 1811, p. 355.

Mycetes bicolor? *Gray*, Ann. and Mag. N. Hist., vol. xvi. 1845, p. 219.

Icon, *Humb.*, Rec. des Obs. T. xxx.

Adultus *fuscus*, *fulvus*.

Catulus pilis *nigris*, apicibus *fulvo-fuscis*, artibus *nigris* aut *fuscis*.

Adult.—General color yellowish brown or brownish yellow; hairs of shoulders annulated with black.

Half grown.—Body as in adult, limbs and tail very dark brown, approaching black.

Young.—General color black, tips of hairs of body yellowish brown, base of tail and anal region reddish brown.

This species, as well as the following, is remarkable for the great variety of coloration occasioned by age. The young at first sight appears of an intense black color; but upon a closer examination, the hairs, more especially of the back and sides of head, are found to be tipped with reddish brown. As the animal becomes older, the black gradually disappears, a yellowish brown color appearing in its place, until in the adult the only remains of the black are to be found in a few annulations in the hairs of the shoulders.

Current No.	LOCALITY.	Sex.	From muzzle to				Tail	Length of		Length of		Owned by	Nature of Specimen.
			Eye	Ear	Occ.	Tail		Ant. hands	Post. hands	Ant. limbs.	Post. limbs.		
27	Brazil	♂	2.1	4.3	4.8	21	21	3.5	5	11.5	11	Academy	{ Mount- ed skin “ “
571	“	♂	1.8	4	4.4	23	22	3.8	5	13	14	“	
57	“	♀	1.5	3	4	17	11	3	4	8	8.3	“	

Skull.—Antro-posterior 3.8; oecipito-frontal 2.3; bi-temporal 1.85; bi-parietal 1.9; facial angle 50°; cranial capacity 3.75.

Lower Jaw.—Angle to symphysis 3; angle to condyle 2.05; angle to coronoid process 1.95; posterior molar to coronoid process 1.05.

1862.]

ALUATTA NIGRA.

Stentor niger et straminea,* *Geoff.*, Ann. du Mus. vol. xix., 1812, p. 108.

Simia caraya, *Humb.*, Rec. des Obs. vol i, 1811, p. 394.

Mycetes barbatus, *Spiz.*, Sim. et Vesp. 1811, p. 45.

Icon., *Spiz.*, T. xxxiii.

Hab.—Brazil, Paraguay et Bolivia.

A. Atræ; fœmina et juniores straminei nigro varii.

Adult.—Male entirely of a deep black color; hairs of occiput directed forward, meeting at right angles those of the forehead, which are directed backward.

Female and Young.—Pale straw color dashed with black.

The young of this species are at birth entirely of a pale straw color. About the period of the second dentition the hairs upon the medio-dorsal line become black at their bases; soon after, this change takes place upon other parts of the body, the black gradually taking the place of the straw color, until the entire body in the adult male is of an intense black color—the adult female having the coloration of the half grown male. Upon the forehead is a well marked semicircular ridge of hairs formed by the meeting at nearly right angles of the hairs of the forehead and occiput; the tips of these hairs in the female are black.

Current No.	LOCALITY.	Sex.	From muzzle to				Tail	Length of		Length of		Owned by	Nature of Specimen.
			Eye	Ea	Occ.	Tail		Ant. hands	Post. hands	Ant. limbs.	Post. limbs.		
4619	Paraguay	♂	2.3	4	5.1	26	18.5	4	5.5	14.9	16	Smithsonian	Skin
3259	"	♀	2	3.5	5	24	22	3.8	5	12	14	"	"
808	Brazil	♂	2	4	5	24.5	26	4	5.5	14	16	Academy	{ Mount- ed skin
1048	"	♀	1.4	3	5	20	17	3.8	5	12.5	13.5	"	"

Skulls—Current No. 4619 ♂; antro-posterior 5; occipito-frontal 3.2; bi-temporal 2.2; bi-parietal 2; cranial capacity ?; facial angle 40°. Current No. 5136 ♀; antro-posterior 4.1; occipito-frontal 2.8; bi-temporal 2; bi-parietal 2.05; cranial capacity 4.25; facial angle 45°.

Lower Jaws.—Current No. 4619; angle to symphysis 3.9; angle to condyle 3.1; angle to coronoid process 3; posterior molar to coronoid process 1.35. Current No. 5136; angle to symphysis 2.1; angle to condyle 2.35; angle to coronoid process 2.25; posterior molar to coronoid process 1.

ALUATTA BERLZEBUL.

Simia Beelzebul, *Linn.*, Ed. xiii. 1785, p. 35.

Mycetes rufimanus, *Kuhl.*, Beitrage, 1820, p. 31.

Mycetes discolor, *Spiz.*, Sim. et Vesp., 1823, p. 48.

Mycetes villosus? *Gray*, Ann. and Mag. of N. H., 1845, p. 220.

Icon., *Spiz.*, T. xxxiv.

Hab.—Brazil, Paraguay.

A. Nigra, pilis ad basin brunneis, manibus fuscis aut griseis.

Black, slightly dashed with yellow on belly and on internal surface of limbs; hairs of body brown at their bases and black at their apices; hands reddish-brown or grey.

This species resembles at first sight the niger or young ursina, but may be readily distinguished from the former by the brown tint of the bases of hairs of body; from the latter, by the length of the hairs and the total absence of the reddish-brown at their apices, which is always present in that species. Much stress has been laid on the coloration of the hands; this is very variable, being in some specimens reddish-brown, in others greyish, and in others nearly black.

* Is. Geoffroy St. Hilaire's paper, though dated subsequently to that of Humboldt, must have been published anterior to it, and Humboldt quotes *Stentor niger*, Geoff. as a synonym. I have therefore retained Geoffroy's name.

Current No.	LOCALITY.	Sex.	From muzzle to				Tail	Length of		Length of		Owned by	Nature of Specimen.
			Eye	Ear	Occ.	Tail		Ant. hands	Post. hands	Ant. limbs.	Post. limbs.		
3255	Paraguay	♂	2	4	4.5	17.5	18.5	3.2	4.5	12	13	Smithsonian	Skin

Skull No. 3255, much broken.—Antro-posterior 4.3; occipito-frontal 2.4; bi-temporal 1.8; bi-parietal 1.85; facial angle ? cranial capacity ?.

Lower Jaw.—Angle to symphysis 3; angle to condyle 2.4; angle to coronoid process 2.3; posterior molar to coronoid process 1.05.

ALUATTA PALLIATA.

Mycetes palliatus, Gray, Proc. Zool. Soc., 1848, p. 138.

M. Beelzebul, Schott, Michler's Rep., 1862, p. 413.

Icon., Proc. Zool. Soc., 1848, T. vi.

A. Nigra, pilis ad basin fulvis, lateralibus longis.

Hab.—New Grenada.

Head, limbs, and tail black; hairs of back and sides very long, forming a kind of mantle as in the *Colobus guereza*, of a yellowish-brown color, tipped with black; hairs of body black at their tips and yellowish-brown throughout the remainder of their length.

Of this rare species the Smithsonian collection contains four specimens, collected by the Atrato Expedition; the hairs of the mantle appear to be bright yellow in youth, becoming brown in the adult. From the great mutilation of the specimens I am unable to give other than approximate measurements.

Current Number	LOCALITY.	Muzzle to Tail.	Tail.	Ant. hands.	Post. hands.	Ant. limbs.	Post. limbs.	OWNED BY
3250	New Granada	19.5	20.8	4	5	13.5	12	Smithsonian.

Skull—Current No. 3423; antro-posterior 3.95; occipito frontal 2.8; bi-temporal 1.85; bi-parietal 1.95; cranial capacity 4 in.; facial angle 50°.

Lower Jaw.—Angle to symphysis 2.7; angle to condyle 2; angle to coronoid process 1.85; posterior molar to coronoid process .8.

Geographical distribution of the *Lagothricinae*.

	Boliva.	Paraguay.	South Brazil.	North Brazil.	Peru.	Equador.	New Granada.	Venezuela.	Guiana.
<i>Sapajou paniscus</i>				*					*
“ <i>ater</i>								*	*
“ <i>pentadactylus</i>					*				
“ <i>Geoffroyi</i>	*		*					*	
“ <i>Belzebuth</i>				*		*		*	*
“ <i>marginatus</i>			*		*				
“ <i>hybridus</i>				*	*				
<i>Brachyteles arachnoides</i>			*						
<i>Lagothrix Humboldtii</i>	*				*	*		*	
<i>Aluatta senicula</i>				*		*	*	*	*
“ <i>ursina</i>				*			*		
“ <i>niger</i>	*	*	*						
“ <i>Beelzebul</i>			*						
“ <i>palliata</i>							*		